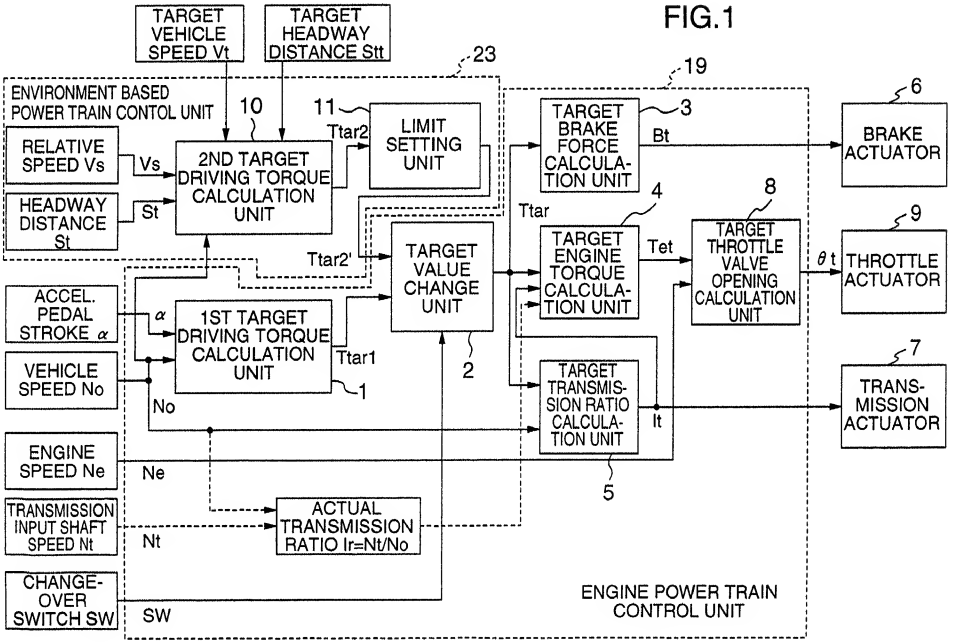
TDOCID: EESO2960

FIG.1



TODEED: EES02960

FIG.2

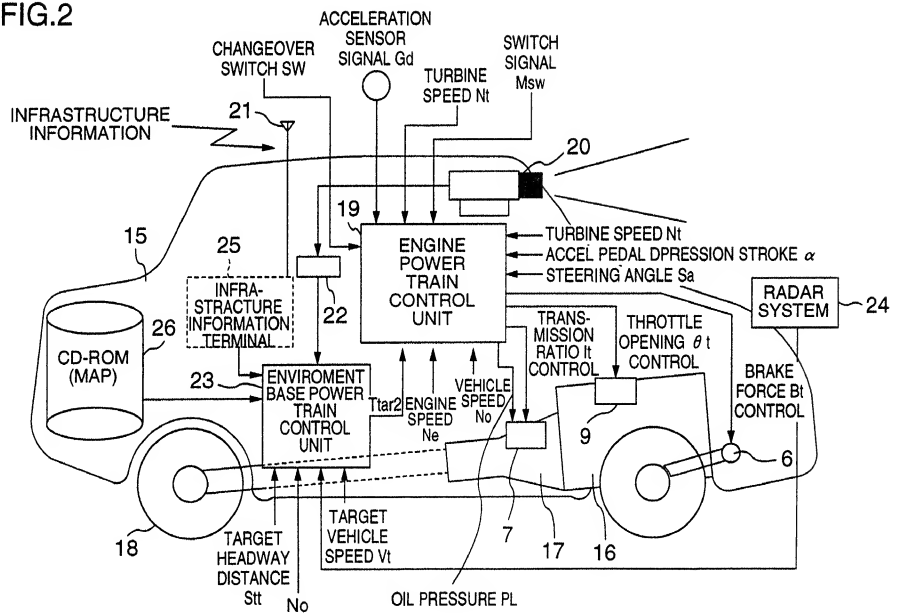


FIG.3

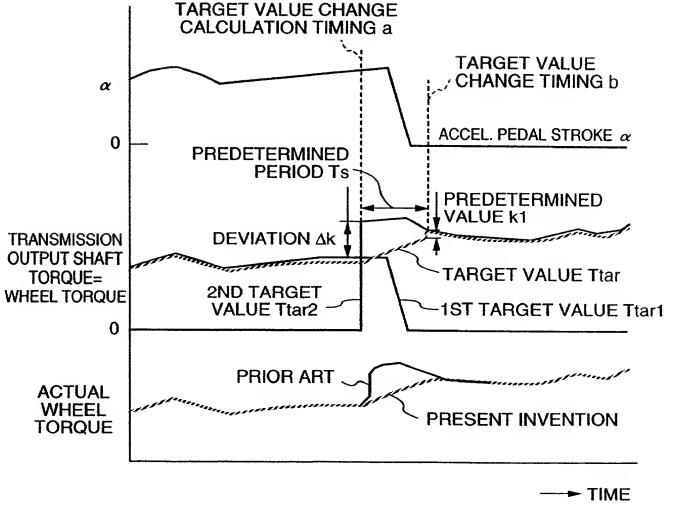

TARGET VALUE CHANGE CALCULATION TIMING a
TARGET VALUE CHANGE TIMING b
α
0
ACCEL. PEDAL STROKE α
PREDETERMINED PERIOD Ts
PREDETERMINED VALUE k1
TRANSMISSION OUTPUT SHAFT TORQUE= WHEEL TORQUE
DEVIATION Δk
TARGET VALUE Ttar
2ND TARGET VALUE Ttar2
1ST TARGET VALUE Ttar1
0
PRIOR ART
ACTUAL WHEEL TORQUE
PRESENT INVENTION
TIME

FIG.4

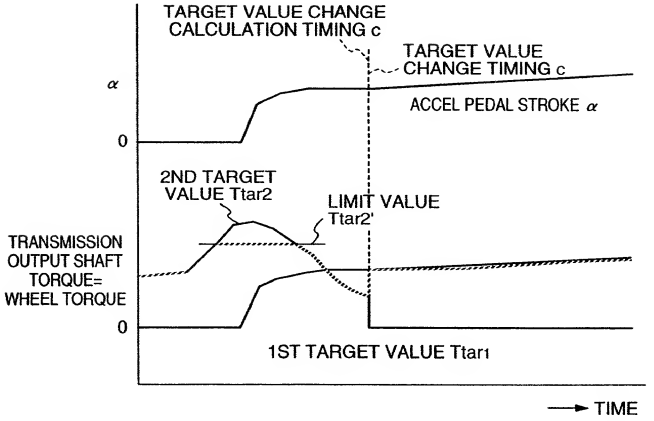

TARGET VALUE CHANGE CALCULATION TIMING c
TARGET VALUE CHANGE TIMING c
α
ACCEL PEDAL STROKE α
0
2ND TARGET VALUE Ttar2
LIMIT VALUE Ttar2'
TRANSMISSION OUTPUT SHAFT TORQUE= WHEEL TORQUE
0
1ST TARGET VALUE Ttar1
TIME

FIG.5

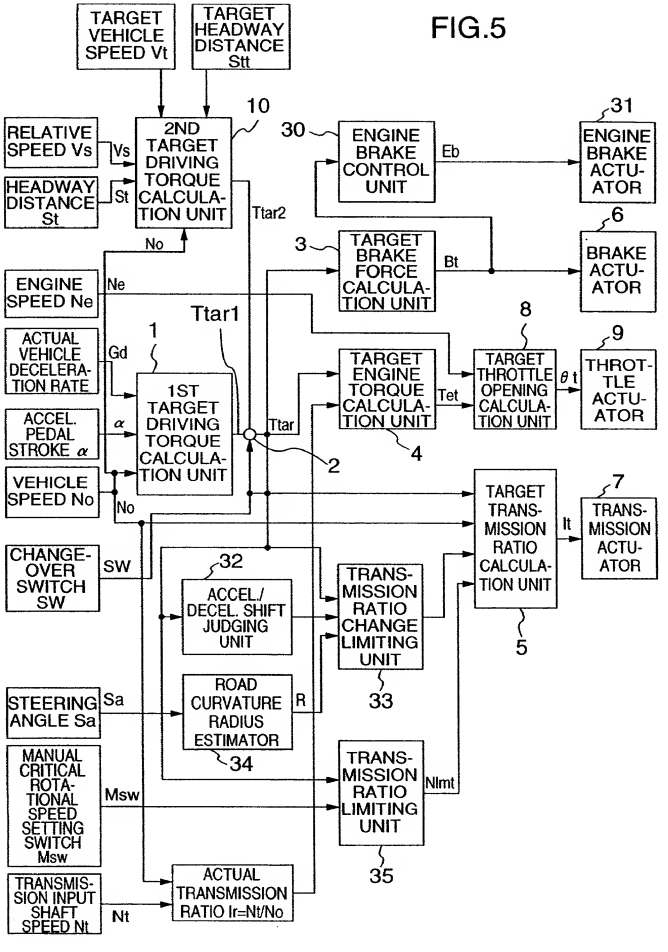

TARGET VEHICLE SPEED Vt
TARGET HEADWAY DISTANCE Stt
RELATIVE SPEED Vs
Vs
HEADWAY DISTANCE St
St
2ND TARGET DRIVING TORQUE CALCULATION UNIT
10
Ttar2
No
ENGINE SPEED Ne
Ne
ACTUAL VEHICLE DECELERATION RATE
Gd
ACCEL. PEDAL STROKE α
α
VEHICLE SPEED No
No
1ST TARGET DRIVING TORQUE CALCULATION UNIT
1
Ttar1
Ttar
2
30
ENGINE BRAKE CONTROL UNIT
Eb
31
ENGINE BRAKE ACTUATOR
3
TARGET BRAKE FORCE CALCULATION UNIT
Bt
6
BRAKE ACTUATOR
TARGET ENGINE TORQUE CALCULATION UNIT
Tet
4
8
TARGET THROTTLE OPENING CALCULATION UNIT
θt
9
THROTTLE ACTUATOR
CHANGE-OVER SWITCH SW
SW
32
ACCEL./DECEL. SHIFT JUDGING UNIT
TRANSMISSION RATIO CHANGE LIMITING UNIT
33
TARGET TRANSMISSION RATIO CALCULATION UNIT
It
5
7
TRANSMISSION ACTUATOR
STEERING ANGLE Sa
Sa
ROAD CURVATURE RADIUS ESTIMATOR
R
34
MANUAL CRITICAL ROTATIONAL SPEED SETTING SWITCH Msw
Msw
TRANSMISSION RATIO LIMITING UNIT
Nlmt
35
TRANSMISSION INPUT SHAFT SPEED Nt
Nt
ACTUAL TRANSMISSION RATIO Ir=Nt/No

FIG.6

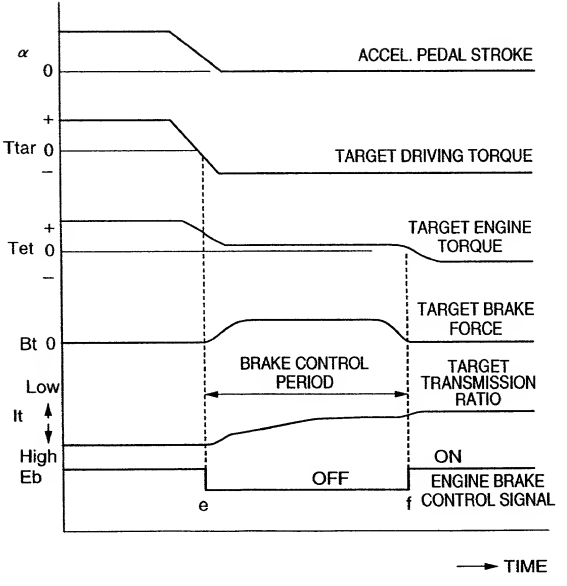

α
0
ACCEL. PEDAL STROKE
+
Ttar 0
−
TARGET DRIVING TORQUE
+
Tet 0
−
TARGET ENGINE TORQUE
TARGET BRAKE FORCE
Bt 0
BRAKE CONTROL PERIOD
TARGET TRANSMISSION RATIO
Low
It
High
ON
Eb
OFF
ENGINE BRAKE CONTROL SIGNAL
e
f
TIME

FIG.7

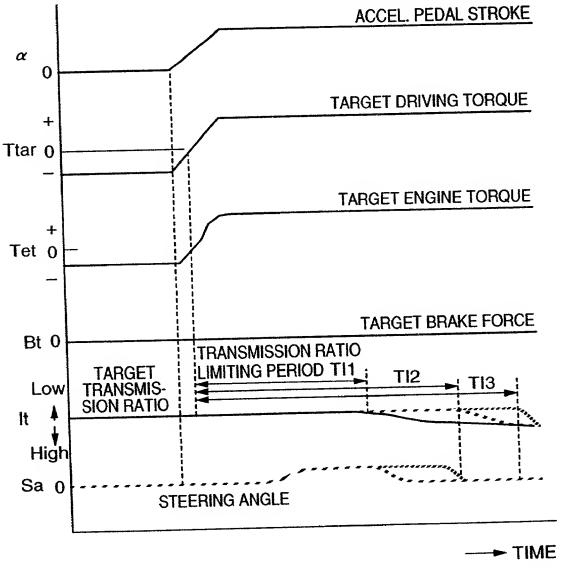

ACCEL. PEDAL STROKE
α
0
TARGET DRIVING TORQUE
+
Ttar 0
−
TARGET ENGINE TORQUE
+
Tet 0
−
TARGET BRAKE FORCE
Bt 0
TRANSMISSION RATIO LIMITING PERIOD TI1
TI2
TI3
Low
TARGET TRANSMIS-SION RATIO
It
High
Sa 0
STEERING ANGLE
TIME

FIG.8

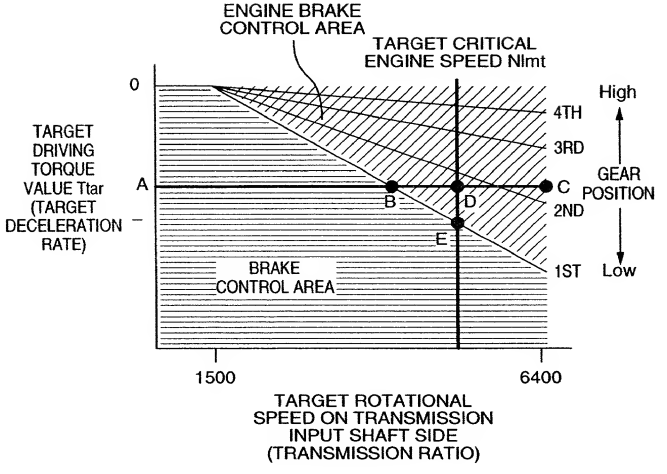

ENGINE BRAKE CONTROL AREA
TARGET CRITICAL ENGINE SPEED Nlmt
0
TARGET DRIVING TORQUE VALUE Ttar (TARGET DECELERATION RATE)
A
B
C
D
E
4TH
3RD
2ND
1ST
High
GEAR POSITION
Low
BRAKE CONTROL AREA
1500
6400
TARGET ROTATIONAL SPEED ON TRANSMISSION INPUT SHAFT SIDE (TRANSMISSION RATIO)

FIG.9

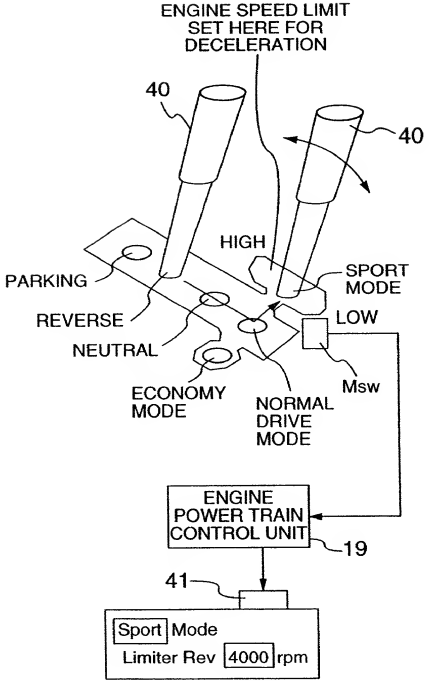

ENGINE SPEED LIMIT SET HERE FOR DECELERATION
40
40
HIGH
PARKING
SPORT MODE
REVERSE
LOW
NEUTRAL
Msw
ECONOMY MODE
NORMAL DRIVE MODE
ENGINE POWER TRAIN CONTROL UNIT
19
41
Sport Mode
Limiter Rev 4000 rpm

FIG.10

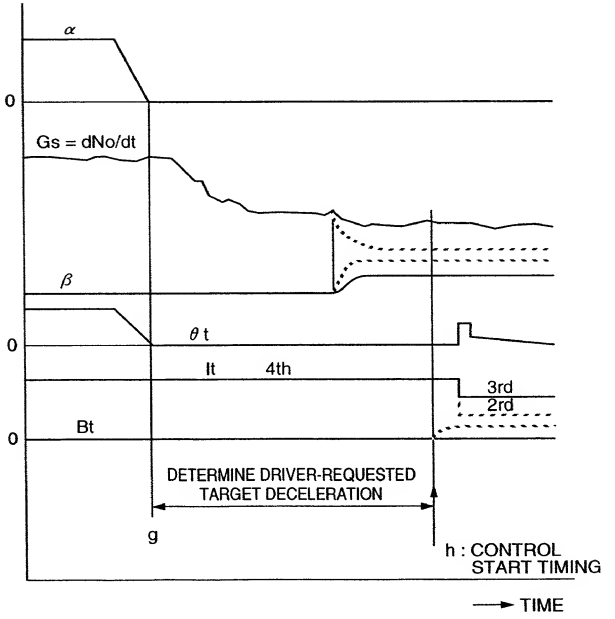
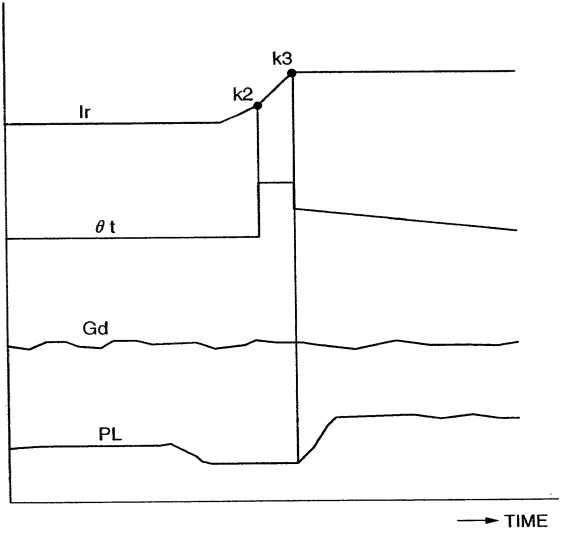
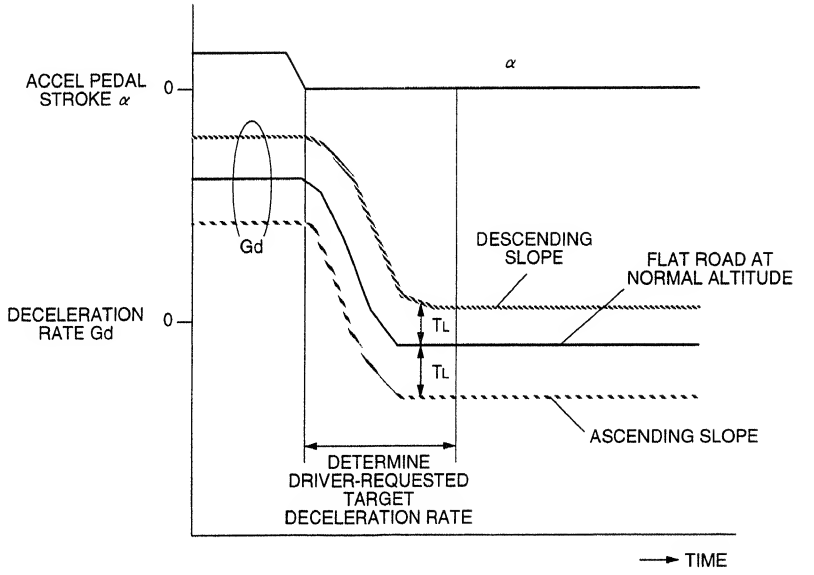

α
0
Gs = dNo/dt
β
θ t
0
It
4th
3rd
2rd
Bt
0
DETERMINE DRIVER-REQUESTED
TARGET DECELERATION
g
h : CONTROL
START TIMING
TIME

FIG.11



TOUEZO'EE90Z8E0

FIG.12



TOUEED' EE502960

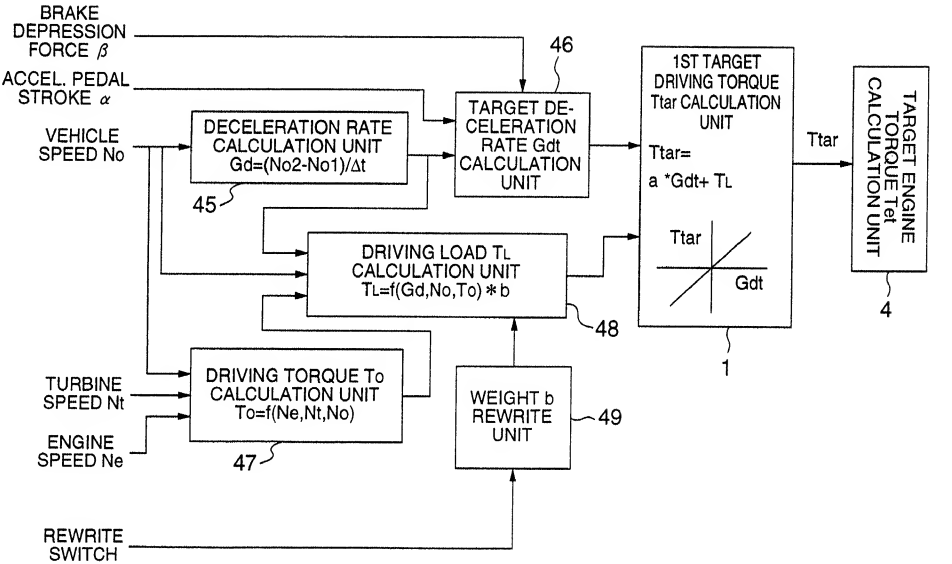



FIG.13